

interior. *Western North Carolina and northern Georgia*, $\frac{1}{2}$ inch. *Tennessee*, none to 2 inches. *Ohio valley*, 2 to 24 inches. *Lower Lakes*, 4 inches to 2 or 3 feet at eastern ends of Lakes Erie and Ontario. *Upper Lakes*, 1 to 2 inches near Lake Superior to 2 or 3 $\frac{1}{2}$ feet along eastern shore of Lake Michigan. *Northwest*, generally from 1 to 6 inches, except from Arkansas to Illinois, where it was much deeper, some observers reporting 2 and 3 feet. *Rocky Mountain stations*, 1 $\frac{1}{2}$ inch at Santa Fé to 7 $\frac{1}{2}$ at Denver and 4 at Virginia City. *Black Hills*, Deadwood, 18 inches.

RELATIVE HUMIDITY.

The average percentage of relative humidity for the month ranges as follows: New England, 65 to 79; Middle Atlantic States, 62 to 78; South Atlantic States, 65 to 72; East Gulf States, 72 to 79; West Gulf States, 61 to 81; Lower Lakes, 71 to 84; Upper Lakes, 66 to 83; Ohio valley and Tennessee, 65 to 76; Upper Mississippi valley, 70 to 76; Lower Missouri valley, 70 to 85; Red River of the North valley, 84 to 94; Eastern Slope, 61 to 77; Western Plateau, 46 to 59; California, 44 to 59. *High stations* report the following; not corrected for altitude: Cheyenne, 66; Denver, 51; Colorado Springs, 63; Santa Fe, 49.

WINDS.

The prevailing winds at the Signal Corps stations are shown by arrows on chart No. II. From an examination of which, it will be seen that they have been almost, without exception, from the north or northwest, except in the Lake region, Ohio valley and Atlantic States, where they have been more westerly, and in some instances southwest.

Total Movements of the Air.—The following are the *largest* monthly movements recorded at the Signal Corps Stations, viz: Cape May, 16,567 miles; Wood's Holl, 15,969; Sandy Hook, 15,426; Cape Lookout, 14,227; Thatcher's Island, 13,584; Indianola, 12,428; Barnegat, 11,046; Cape Henry, 10,564; Sandusky, 10,426; Newport, 10,396; Key West, 9,917; Milwaukee, 9,858. The *smallest* are: Visalia, Cal., 1,443 miles; Deadwood, Dak., 1,658; Nashville, 2,853; Salt Lake City, 2,895; Santa Fe, 2,941; Lynchburg, 2,969; Indianapolis, 3,246; Augusta, 3,526; Knoxville, 3,730; Dubuque, 3,565; Eagle Pass, Tex., 3,620; Los Angeles, 3,906.

VERIFICATIONS.

Indications.—The detailed comparison of the tri-daily weather Indications with the telegraphic reports for the succeeding twenty-four hours, show the general percentage of omissions to be 1.4 per cent., and of verifications to be 87.1 per cent. The percentage of verifications for the four elements have been: weather, 93.6; wind, 84.4; temperature, 86.5; barometer, 83.8. The percentage of verifications by geographical districts have been: New England, 88.6; Middle States, 87.0; South Atlantic States, 85.5; East Gulf States, 90.1; West Gulf States, 88.6; Lower Lake Region, 87.1; Upper Lake Region, 88.4; Tennessee and the Ohio Valley, 85.5; Upper Mississippi Valley, 85.2; Lower Missouri Valley, 84.6. Of the 3,667 predictions that have been made, 118 or 3.2 per cent. are considered to have entirely failed; 141 or 3.8 per cent. were one-fourth verified; 361 or 9.8 per cent. were one-half verified; 281 or 7.7 per cent. were three-fourths verified; 2,766 or 75.5 per cent. were fully verified, so far as can be judged from the tri-daily weather maps.

Cautionary Signals.—During the month 187 Cautionary Signals were displayed; 155 or 82.9 per cent. were justified by subsequent hourly velocities of 25 miles or over at, or within 100 miles of, the station.

Cautionary Off-shore Signals.—50 signals, not included in the above, were ordered up as Cautionary Off-shore Signals; 36, or 72.0 per cent., of these were justified, both as to velocity and direction. 78 Cautionary Signals were changed to Cautionary Off-shore Signals, and, as to direction, 67 or 85.9 per cent. were justified; as to velocity they are considered with the cautionary. 68 cases were reported, generally from scattered stations, of winds of 25 miles or over where signals were not ordered.

NAVIGATION.

In the table, on right side of chart No. III, are given the highest and lowest readings, on the Signal Corps river-gauges, during the month, with dates of same.

Ice on Rivers and Lakes.—*Missouri*—Fort Randall, Dak., 24th, river closed by ice; Yankton, 13th, closed by ice; Omaha, 18th, closed by ice; Croning, 18th, closed by ice; Leavenworth, 11th to 14th, much floating ice,—17th, gorge formed one mile below,—18th, frozen over; Lexington, 23rd, closed; Booneville, 27th, closed. *Mississippi*—St. Paul, 14th, frozen over; La Crosse, 7th, first floating ice,—11th, ice gorged,—12th, river closed; Dubuque, 2nd, last boat of season left, latest closing of navigation since 1857,—7th, full of floating ice,—17th ice-gorge,—18th, frozen over,—23rd, teams crossing; Fulton, 9th, ice stopped running; Le Claire, 14th, frozen over, people crossing; Davenport, 7th, first floating ice,—14th shore ice,—18th, navigation closed,—20th, frozen over,—26th, teams crossing; Muscatine, 8th, floating ice, 19th, closed,—23rd, teams crossing; Burlington, 9th, first ice in river,—10th to 13th, floating,—13th, navigation entirely suspended,—16th, frozen over; Ft. Madison, 18th, river closed; Keokuk, 7th, much floating and shore ice,—10th, canal closed,—20th, ice 8 to 10 inches thick,—27th to 31st, floating and shore ice; St. Louis, 15th to 23rd, floating ice,—17th, navigation suspended,—24th, gorged and frozen over, people crossing; Cairo, 23rd to 31st, river frozen. *Maquoketa*—Monticello,